



Next Generation Identification (NGI)

Technical Specifications Document for the Iris Pilot (IP) Project

DRAFT Version 2.6.8

March 31, 2016



CJIS Document Number – NGI-DOC-02408-2.0

Prepared by:
Biometric Center of Excellence

UNCLASSIFIED

UNCLASSIFIED

This page intentionally left blank

UNCLASSIFIED

UNCLASSIFIED

CHANGE DESCRIPTION FORM

Revision	Change Description	Created/Changed by	Date	Approved By
2.6.4	Iris Recognition Pilot (IRP) to Iris Pilot (IP). IIDS/SRE 2.018 NAM field mandatory. Synchronizing IP TOTs with EBTS 10.	Mark Parsons	11/5/13	
2.6.5	Removed ERRI from FIS responses. Restricted 17.025 EAS field values. Added ELR to BID of IRQ submission.	Mark Parsons	3/26/14	
2.6.6	Fixed BDEL field requirements. Added missing images error message. Corrections to examples. Field 17.019 MMS is mandatory with image.	Mark Parsons	11/17/14	
2.6.7	Type-17 example for image and no image configurations. Note about BIL deviation from EBTS. IRQ synchronization with EBTS.	Mark Parsons	3/23/15	
2.6.8	No functional changes. Editorial rewrite. Added note for SRF “Y” value & BIA limitations. Added Appendix D – SII format/information. Fixed 2.2073a identifier, TOT names, EVI note.	Mark Parsons	3/31/16	

TABLE OF CONTENTS

1	Introduction.....	8
2	Scope.....	9
3	Use Cases.....	10
3.1	Correctional Facilities	10
3.2	Supervised Release.....	10
3.3	Mobile Identification.....	10
3.4	Border Security	10
3.5	Investigation Searches.....	10
4	Data Exchange.....	11
4.1	Information Security	11
4.2	Transfer Protocol.....	11
4.3	Transaction Routing	11
4.4	Originating Agency Identifier (ORI).....	11
4.5	Email Address	11
5	General Policies and Guidelines	12
5.1	Criminal Justice Purposes	12
5.2	Pilot Availability	12
5.3	Data Retention.....	12
5.4	Damaged or Missing Eyes.....	12
5.5	Conflicting Eye Labels.....	12
5.6	Failure to Template	12
5.7	Dual Iris Submission	12
6	Enrollments	13
6.1	Dual Iris Enrollments	13
6.2	Primary Enrollment Method.....	13
6.2.1	Memorandum of Understanding	13
6.2.2	Submissions without Images.....	13
6.2.3	Multiple Responses	13
6.3	Secondary Enrollment Method.....	13
6.4	Bulk Enrollment Method.....	13
7	Searches	14
7.1	Search Scope	14
7.2	Search Filters.....	14
7.3	Dual Iris Identification Searches	14
8	Pilot Specific Behavior.....	15
8.1	Two Responses for Criminal Tenprint Enrollments	15
8.2	Biometric Image Submission (FIS) Format	15

UNCLASSIFIED

8.3	Additional Fields in Identification Search Response	15
8.4	Additional Information Item – Eye Label	15
8.5	Effective Acquisition Spectrum Restriction.....	15
8.6	Special BSI Values	15
8.7	Special Error Messages	16
8.8	Biometric Image List (BIL) Deviation from EBTS	16
8.9	Search Results Findings (SRF) Value	16
8.10	Biometric Image Available (BIA) Limitations	16
9	Iris Image Capture.....	17
9.1	General Guidelines	17
9.2	Iris Images for Investigation	19
10	Record Types and Fields	20
10.1	Type-1 — Transaction Information Record	20
10.2	Type-2 — User-Defined Descriptive Text Record.....	20
10.3	Type-10 — Facial, Other Body Part, and SMT Image Record	20
10.4	Type-17 — Iris Image Record.....	21
10.4.1	Iris Image Compression	21
10.4.2	Iris Image Color Space.....	21
10.4.3	Iris Image Eye Color	21
10.4.4	Iris Image Effective Acquisition Spectrum.....	21
11	Types of Transactions (TOT).....	22
11.1	Transaction Overviews	22
11.2	Data Management Service.....	24
11.2.1	Biometric Image Submission (FIS)	25
11.2.2	Biometric Image Submission Response (FISR)	25
11.2.3	Administrative Transaction Error Response (ERRA) – FIS	25
11.2.4	Biometric Delete Request (BDEL)	25
11.2.5	Biometric Delete Response (BDEL R)	25
11.2.6	Administrative Transaction Error Response (ERRA) – BDEL	26
11.3	Identification Service.....	26
11.3.1	Iris Image Identification Submission (IIDS).....	26
11.3.2	Submission Results – Electronic (SRE).....	26
11.3.3	Biometric Search Error Response (ERRB).....	27
11.4	Information Service	27
11.4.1	Biometric Image/Feature Retrieval Request (IRQ)	28
11.4.2	Image Request Response (IRR)	28
11.4.3	Image Summary Response (ISR).....	28
11.4.4	Information Transaction Error Response (ERRI)	29
11.5	Investigation Service	29
11.5.1	Iris Image Investigation Search (IIS).....	29
11.5.2	Search Results Biometric (SRB).....	30
11.5.3	Biometric Search Error Response (ERRB).....	30

11.6	Status/Error Messages	31
12	Contact Information	33
Appendix A:	Acronyms.....	A-1
Appendix B:	References.....	B-1
Appendix C:	Sample Record Layouts	C-1
C.1	Type-1 Record Sample.....	C-2
C.2	Type-2 Record Sample – Data Management Service	C-3
C.2.1	Biometric Delete Request (BDEL)	C-3
C.2.2	Biometric Delete Response (BDEL R)	C-3
C.2.3	Biometric Image Submissions (FIS).....	C-4
C.2.4	Biometric Image Submission Response (FISR)	C-4
C.3	Type-2 Record Sample – Identification Service	C-5
C.3.1	Iris Image Identification Submission (IIDS).....	C-5
C.3.2	Submission Results – Electronic (SRE).....	C-6
C.4	Type-2 Record Sample – Information Service.....	C-7
C.4.1	Biometric Image/Feature Retrieval Request (IRQ)	C-7
C.4.2	Image Request Response (IRR)	C-8
C.4.3	Image Summary Response (ISR).....	C-8
C.5	Type-2 Record Sample – Investigation Service	C-9
C.5.1	Iris Image Investigation Search (IIS).....	C-9
C.5.2	Search Results Biometric (SRB).....	C-10
C.6	Type-2 Record Sample – Pilot Error Responses.....	C-11
C.6.1	Administrative Transaction Error Response (ERRA).....	C-11
C.6.2	Biometric Search Error Response (ERRB).....	C-11
C.6.3	Information Transaction Error Response (ERRI)	C-12
C.7	Type-10 Record Sample.....	C-13
C.8	Type-17 Record Samples	C-14
C.8.1	Iris Image Present	C-14
C.8.2	Iris Image Absent.....	C-15
Appendix D:	Supplementary Identity Information.....	D-1

LIST OF TABLES

Table 9-1 Iris Acquisition Profile (IAP) Levels	18
Table 9-2 Iris Margin Requirements Corresponding to Iris Storage Format (ISF) Codes	19
Table 11-1 Transaction Submission, Response, and Error TOTs.....	22
Table 11-2 Maximum Transaction Response Times	23
Table 11-3 Transaction Record Type Requirements	24
Table 11-4 IRQ Response Images from BID Information Items.....	28
Table 11-5 Iris Pilot Error Messages	31
Table 11-6 Enrollment Scenario Status/Error Messages	32
Table 12-1 Iris Pilot Contact Information.....	33

1 INTRODUCTION

The Iris Pilot (IP) offers iris recognition services to partner agencies for criminal justice purposes. The Federal Bureau of Investigation (FBI) Criminal Justice Information Services (CJIS) Division requires CJIS Systems Agencies (CSAs) complete an Iris Pilot Participation Memorandum of Understanding (MOU) prior to using or extending Pilot services.

The Pilot offers enrollment, identification searches, investigation searches, image retrieval, and repository maintenance. Interested agencies may use all the Pilot services or individual services (e.g. enrollment only).

The Pilot is used to validate and improve specifications while addressing operational challenges resulting from integration of iris recognition in booking environments and the FBI Next Generation Identification (NGI) system. The Pilot also provides opportunities to contribute to the development of National Institute of Standards and Technology (NIST) products including best practices for iris image capture, iris camera certification requirements (similar to FBI fingerprint algorithm and sensor certification), specifications for iris image compression, and an open source iris image quality metric¹.

The initial iris repository was compiled from criminal justice and national security related organizations. Additional collection is ongoing through online live enrollment and offline bulk enrollment. Offline enrollment requires completion of an Iris Pilot Bulk Enrollment Memorandum of Understanding (MOU) with the FBI CJIS Division.

¹ Quality metric is being developed in conjunction with ISO/IEC JTC 1/SC 37, 29794-6, Biometric sample quality – Part 6: Iris image data.

2 SCOPE

This document defines the interface (i.e. transactions, records, and fields) to FBI iris recognition services. This document also identifies areas of the specification most likely to change between the Pilot and possible full integration in the NGI system. General business rules are specified in the Iris Pilot Concept of Operations (IP CONOPS) and the Iris Pilot MOUs.

Transaction and field specifications in this document are based primarily on FBI Electronic Biometric Transmission Specification (EBTS) 10.0, the EBTS 10 Technical and Operational Updates (TOUs), and the American National Institute/National Institute of Standards and Technology – Information Technology Laboratory (ANSI/NIST-ITL) 1-2011 Update 2013 – *Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information*. This document assumes familiarity with FBI EBTS transactions and ANSI/NIST-ITL record/field specifications and only defines new or differing behaviors. Therefore, these documents must be used in conjunction with this specification to fully understand Pilot services.

3 USE CASES

Use cases are fully documented in the IP CONOPS and briefly summarized here. Iris recognition is useful in scenarios requiring very fast, accurate identification.

Criminal justice agencies sharing iris data from local, regional, state, tribal, and federal systems with the FBI Iris Pilot will increase iris recognition utility and may enable additional use cases.

3.1 Correctional Facilities

Correctional facilities are ideal locations to enroll iris images during existing fingerprint booking processes. Correctional facilities can use the identification service to identify inmates during movement and release. National Crime Information Center (NCIC) information provided with the search results can alert staff to outstanding wants/warrants. Additional match information including sex offender status, gang affiliation(s), and caution & medical codes enhances officer and inmate safety.

3.2 Supervised Release

The identification service can be used to reduce administrative burden by providing a quick, contactless biometric identification with NCIC information including any wants/warrants. Iris recognition also provides opportunities for additional process automation which allows more attention on supervised individuals.

3.3 Mobile Identification

The development of smaller iris cameras and mobile iris collection devices provides opportunities for mobile use of the identification service. Mobile identification is most useful in regions where the criminal justice system is already performing iris collection.

3.4 Border Security

The identification service is fast and iris images can be collected quickly with contactless cameras. Iris identification provides a faster way to screen subjects. Iris recognition also helps mitigate processing delays for individuals with damaged, worn, or mutilated fingerprints.

3.5 Investigation Searches

Unlike fingerprints, iris images are found in digital evidence but are not left on physical objects at crime scenes. Iris images from high-resolution images or videos may be suitable for providing investigative leads. Investigative searches remain an active research area being explored as part of the Pilot.

4 DATA EXCHANGE

4.1 Information Security

In general, the Pilot follows the same security policies as the NGI system. Partner agencies must comply with the CJIS Security Policy and any additional security requirements set by the relevant CJIS Systems Agency (CSA).

4.2 Transfer Protocol

Pilot transactions must be submitted over the CJIS Wide Area Network (WAN) as Multipurpose Internet Mail Extensions (MIME) encoded e-mail attachments via Simple Mail Transfer Protocol (SMTP). The Pilot does not support Extensible Markup Language (XML) EBTS web service requests.

4.3 Transaction Routing

Pilot submissions are routed from the local user to the CJIS Systems Agency (CSA) to FBI CJIS. Responses follow the reverse path from FBI CJIS to the CSA to the local agency. This routing is identical to fingerprint transaction routing.

4.4 Originating Agency Identifier (ORI)

Pilot transactions use the existing ORI of the submitting agency.

4.5 Email Address

Most agencies send Pilot transactions to the same email address used to communicate with NGI. Agencies should confirm the destination email address with FBI CJIS prior to sending Pilot transactions.

5 GENERAL POLICIES AND GUIDELINES

5.1 Criminal Justice Purposes

The Pilot should be used exclusively for criminal justice purposes.

5.2 Pilot Availability

The Pilot has experienced minimal downtime since deployment. However, there will be downtime for upgrades and maintenance. Pilot participants will be given advance notice of such events whenever practical.

5.3 Data Retention

Submission and response data may be logged and retained for future use.

5.4 Damaged or Missing Eyes

When an iris cannot be captured, the reason should be recorded in field 17.028 Damaged or Missing Eye (DME), and the Type-17 record should follow the format provided in C.8 Type-17 Record Samples – Iris Image Absent. Placeholder images are forbidden.

5.5 Conflicting Eye Labels

Submissions with conflicting 17.003 Eye Label (ELR) fields (e.g. two right eyes) will be rejected.

5.6 Failure to Template

Iris images sometimes fail to “template” – that is, the images cannot be converted for use in the recognition system. An error transaction is returned when all images in a submission fail to template.

For dual iris submissions (enrollments and identification searches) where one image templates and one fails, the requested action is performed and a successful response is returned with a warning message in the 2.060 Status/Error Message (MSG) field.

See 11.6 Status/Error Messages for details.

The operator should recapture failed images and resubmit. The Biometric Image Submission (FIS) can be used to add images to an otherwise successful enrollment.

5.7 Dual Iris Submission

Two iris images will be used for all enrollments and identification searches unless an iris cannot be captured.

Research has shown the matching of a single iris image to be highly accurate; however, enrolling and searching a single iris provides a chance for a “clean” miss (i.e. only one iris is enrolled; the other iris is searched).

6 ENROLLMENTS

Direct Pilot enrollment is detailed in 11.2 Data Management Service. Enrollment via Next Generation Identification (NGI) is detailed in this section.

6.1 Dual Iris Enrollments

Two iris images will be provided for all enrollments unless an iris cannot be captured. The Biometric Image Submission (FIS) transaction can be used to add previously unavailable iris images to an existing enrollment record.

6.2 Primary Enrollment Method

Inclusion of iris images with NGI Criminal Tenprint Submission – Answer Required (CAR) transactions is the preferred enrollment method. When iris images are captured as part of a CAR booking, no additional data entry is normally necessary.

6.2.1 Memorandum of Understanding

Iris image submission via NGI tenprint transactions is an existing NGI capability and does not require completion of either the Iris Pilot Participation MOU or Iris Pilot Bulk Enrollment MOU.

6.2.2 Submissions without Images

As a special case, NGI tenprint transactions with two Type-17 records without iris images are allowed for record keeping and reporting purposes, but provide no other benefits. The Pilot response will add a warning in the 2.060 Status/Error Message (MSG) field. See Table 11-6 Enrollment Scenario Status/Error Messages.

6.2.3 Multiple Responses

Successful iris enrollment via NGI tenprint transactions results in two responses – one from NGI and one from the Pilot (see 8.1 Two Responses for Criminal Tenprint Enrollments). This behavior can be disabled on request.

6.3 Secondary Enrollment Method

A Biometric Image Submission (FIS) can be used to add iris images, and optionally a front face image, to an existing NGI enrollment. The FIS is normally used when images were not captured during booking. The subject FBI Number (FNU)/Universal Control Number (UCN) and Date Printed (DPR) must be provided. The Event Identifier (EVI) may be provided in addition to, or as an alternative for, the DPR.

6.4 Bulk Enrollment Method

Agencies should coordinate with FBI CJIS Division and the applicable CJIS Systems Agency (CSA) to verify the acceptability of a bulk enrollment. Bulk data is then provided to FBI CJIS Division in the Pilot Biometric Image Submission (FIS) format.

7 SEARCHES

Pilot searches are detailed in 11.3 Identification Service and 11.5 Investigation Service.

7.1 Search Scope

By default, each Pilot search request performs a one-to-many (1:n) search of all enrollments in the repository. See also 7.2 Search Filters.

7.2 Search Filters

Identification searches rely entirely on the submitted iris images for matching.

Investigation searches may include biographic information (e.g. age, height range) to filter results. Filtering eliminates higher confidence potential matches that do not satisfy filters in favor of potential matches that do satisfy filters. Filtering should only be used after first trying an unfiltered search.

7.3 Dual Iris Identification Searches

Two iris images will be provided for all identification searches unless an iris cannot be captured.

8 PILOT SPECIFIC BEHAVIOR

The Pilot is designed to work as seamlessly as possible with existing standards and CJIS services. However, Pilot-specific behavior is necessary. Attempts are made to document any behaviors or standards modifications that require implementer consideration.

8.1 Two Responses for Criminal Tenprint Enrollments

A criminal tenprint submission to NGI results in a single success or error response. When iris images are included, a second success or error response is returned if the tenprint submission was successful. The second response provides the status of iris image and mugshot enrollment in the Pilot. The iris images are not processed if the tenprint submission fails; consequently only one error response is provided in this case. This behavior is expected to change to a single response after the Pilot.

8.2 Biometric Image Submission (FIS) Format

The Pilot Biometric Image Submission (FIS) format differs from the NGI FIS in several ways. No friction ridges; profile images; or scars, marks, and tattoos (SMT) are allowed. Mugshots are limited to a single front face. Two Type-17 records are required, and at least one Type-17 record must include image data. This behavior will likely change after the Pilot to require fingerprint submission when enrolling irises with the FIS transaction.

8.3 Additional Fields in Identification Search Response

The 2.088 Note Field (NOT) and 2.2033 Supplementary Identity Information (SII) fields are included in the Search Results – Electronic (SRE) response to an Iris Image Identification Submission (IIDS). The NGI SRE does not include either of these fields.

8.4 Additional Information Item – Eye Label

An additional information item to hold the eye label has been added to the 2.2028 Biometric Image Description (BID) field for the Biometric Image/Feature Retrieval Request (IRQ) and the 2.2033 Candidate List (CNL) field for the Search Results Biometric (SRB) response to an Iris Image Investigation Search Request (IIIS). This information item functions identically to the 17.003 Eye label (ELR) field.

8.5 Effective Acquisition Spectrum Restriction

The Pilot does not allow use of the value “DEFINED” for the 17.025 Effective Acquisition Spectrum (EAS) field. See also 10.4.4 Iris Image Effective Acquisition Spectrum.

8.6 Special BSI Values

EBTS specifies that the Biometric Set Identifier (BSI) is a numeric field, but Pilot-specific BSI values are prefixed with “IRP”. The overall BSI length remains unchanged.

8.7 Special Error Messages

The Pilot has identified the need for several iris-specific error messages to be used in the 2.060 Status/Error Message (MSG) field. These error message codes are prefixed with “IRP” and can be found in Table 11-5 Iris Pilot Error Messages. These codes or similar variations may eventually be incorporated into EBTS.

8.8 Biometric Image List (BIL) Deviation from EBTS

The Pilot populates 2.2073 Biometric Image List (BIL) for iris investigative searches while EBTS states the BIL is only populated for face searches. The Pilot also allows the 2.2073d Image Type (IMT) information item to contain the value “11” for iris as opposed to EBTS, which only allows “9” for face and “10” for Scars, Marks, and Tattoos (SMT).

8.9 Search Results Findings (SRF) Value

The Pilot populates the 2.059 Search Results Finding (SRF) field on the SRE returned from an IIDS. When a match is made, the “Y” value is used to specify “Yellow – Probable Candidate, Potential Match” to distinguish an iris identification from a rolled tenprint positive identification. EBTS does not list the SRE as a response that allows the “Y” value.

8.10 Biometric Image Available (BIA) Limitations

The Biometric Image Available (BIA) codes returned in response Pilot searches indicate available Pilot biometric images as opposed to NGI biometric images.

9 IRIS IMAGE CAPTURE

9.1 General Guidelines

As with other biometrics, the quality of collected iris images directly impacts matcher performance. Therefore, it is important that images submitted to the Pilot meet or exceed minimum quality requirements. Within the biometrics community, efforts exist to develop iris image capture best practices and an iris image quality metric that correlates directly with the performance of available matchers.

As part of Iris Exchange (IREX) V: Guidance for Iris Image Collection, NIST has developed the following, recommended materials:

- Report: *Guidance for Iris Image Collection*
- Slides: *Best Practices for Iris Image Capture*
- Poster: *Guide to Capturing Iris Images*

NIST Special Publication 500-280 – Mobile ID Device Best Practice Recommendation Version 1.0 (Section 8) provides guidelines for iris image capture using mobile devices. Table 9-1 Iris Acquisition Profile (IAP) Levels, adapted from that document, summarizes key iris image capture characteristics in terms of three IAP levels: 20, 30, and 40. Increases in IAP levels are expected to increase system performance.

NIST is also in the process of developing recommended technical specifications for iris capture cameras based on specific use cases.

UNCLASSIFIED

Table 9-1 Iris Acquisition Profile (IAP) Levels²

Capture	Affects	IAP Levels		
		20	30	40
Iris diameter in true, non-up-sampled pixels	Accuracy	≥140 pixel	≥170 pixel	≥210 pixel
Number of (quasi-) simultaneously captured eyes	Capture speed, search speed, accuracy	≥1	≥1	2
Exposure time	Capability to freeze motion	≤33 ms	≤15 ms	≤10 ms
Viewfinder & Image quality feedback	Rate of successful captures	External or Internal	Internal, Optical or electronic	Internal, At least electronic
Capture distance in mm	Intrusiveness, operator safety	≥100		
Capture volume per eye, minimum width / height / depth in mm	Ease of alignment	Regular devices: 11 mm / 9 mm / 20 mm for single-eye capture 19 mm / 14 mm / 20 mm for two-eye capture Device with a mechanical alignment aid: 11 mm / 9 mm / 12 mm for single-eye capture 19 mm / 14 mm / 12 mm for two-eye capture		
Imaging wavelength range and spectral spread	Dependence of accuracy on eye color	700 to 900 nm Sensitivity ≥35% the power in any 100 nm band		
Scan type	Accuracy, compressibility	Progressive		
Image margins in pixels around iris border	Accuracy	See Table 3-2 for updated values per ANSI/NIST-ITL 1-2011		
Image evaluation frame rate	Time to capture and failure to acquire	≥5 frames/s		
Allowable maximum average irradiance	Relevant for eye safety	Governed by Iec 825-1 and ISO 60825-1		
Sensor signal-to-noise ratio	Recognition accuracy	≥36 db		
Interchange				
Pixel depth in 700-900 nm range	Interoperability	≥8 bits/pixel		
Format, iris	Interoperability	Raw Iso 19794-6-rectilinear ANSI/NIST-ITL Type-17		

Table 9-2 describes the ISF codes³, defined in ANSI/NIST-ITL.

² Adapted from *Mobile ID Device Best Practice Recommendation* Version 1.0, NIST Special Publication 500-280, Table 5, p. 29, August 2009. Note update to “image margins” per ANSI/NIST-ITL 1-2011.

³ From NIST Special Publication 500-290 -- *ANSI/NIST-ITL 1-2011 — Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information*, Table 22, p. 85.

Table 9-2 Iris Margin Requirements Corresponding to Iris Storage Format (ISF) Codes

ISF code	Description	Iris Centering	Iris margin requirement (R is radius of the iris)	
			Horizontal	Vertical
1	Unconstrained image size	Recommended	$\geq 0.6R$	$\geq 0.2R$
2	Raw: 640x480	Recommended	$\geq 0.6R$	$\geq 0.2R$
3	Cropped	Required	$= 0.6R$	$= 0.2R$
7	Cropped and Masked	Required	$= 0.6R$	$= 0.2R$

9.2 Iris Images for Investigation

Iris images that will be the subject of investigation searches will most likely be cropped from photos or videos that were obtained with ambient visible light illumination of various levels. Iris images are typically captured using near-infrared (NIR) illumination to better discern iris texture, particularly of darkly pigmented irises. Attempting to match iris images captured with visible light illumination to iris images captured with NIR illumination offers a challenge and requires research to determine if such comparisons can be performed effectively. Additionally, Pilot participants wishing to prepare and submit iris images for investigation must possess the ability to obtain images from photo and video source material and crop such images to meet ANSI/NIST-ITL Type-17 requirements.

10 RECORD TYPES AND FIELDS

Record types 1, 2, 10, 17, which are defined in *ANSI/NIST-ITL 1-2011 Update: 2013 – Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information* [ANSI/NIST-ITL], Sections 8.1, 8.2, 8.10, and 8.17, respectively, are used for iris-related transactions.

Each Pilot transaction shall include one Type-1 record and one Type-2 record. The Type-1 record shall be the first record within the transaction. Type-10 and Type-17 records may also be included in certain transactions. See Table 11-3 Transaction Record Type Requirements.

10.1 Type-1 — Transaction Information Record

The Pilot Type-1 record follows the specifications for Type-1 records and fields found in ANSI/NIST-ITL and EBTS. The exact layout, including allowed fields, of the Pilot Type-1 record can be found in C.1 Type-1 Record Sample.

All Pilot responses and the Pilot specific transactions (IIDS, IIIS, FIS, IRQ, BDEL) require the 1.013 Domain Name (DOM) and 1.016 Application Profile Specifications (APS) fields be set as follows:

- 1.013 DOM
 - Domain Name (DNM) = NORAM
 - Domain Version Number (DVN) = EBTS 10.0
- 1.016 APS
 - Application Profile Organization (APO) = NGI
 - Application Profile Name (APN) = IRP
 - Application Profile Version Number (APV) = 1.0

The Criminal Tenprint Submission – Answer Required (CAR) and other NGI tenprint transactions used for iris enrollment should **not** use the Iris Pilot specific APS field and should follow EBTS guidelines for DOM.

10.2 Type-2 — User-Defined Descriptive Text Record

The Iris Pilot Type-2 record follows the specifications for Type-2 records and fields found in ANSI/NIST-ITL and EBTS. Each Pilot transaction has a specific Type-2 record layout with required and optional fields.

The Search Results – Electronic (SRE) response from an Iris Image Identification Submission (IIDS) may contain additional information in the 2.2023 Supplementary Identity Information (SII). The format is specific to the Pilot – see Appendix D: Supplementary Identity Information.

See Appendix C: Sample Record Layouts.

10.3 Type-10 — Facial, Other Body Part, and SMT Image Record

The Iris Pilot Type-10 record follows the specifications for Type-10 records and fields found in ANSI/NIST-ITL and EBTS. The exact layout, including allowed fields, of the Iris Pilot Type-10 record can be found in C.7 Type-10 Record Sample.

The Pilot only allows Type-10 records with front face images. Therefore, fields 10.003 Image Type (IMT) and 10.020 Subject Pose (POS) must always be set to “FACE” and “F” respectively.

10.4 Type-17 — Iris Image Record

The Pilot Type-17 record follows the specifications for Type-17 records and fields found in ANSI/NIST-ITL. EBTS does not include a Type-17 specification. The Pilot accepts two different configurations for the Type-17 record. One is used when an iris image is present and the other when an image is absent. The exact layout, including allowed fields, can be found in C.8 Type-17 Record Samples.

10.4.1 Iris Image Compression

The Pilot supports the ANSI/NIST-ITL field 17.011 Compression Algorithm (CGA) values “NONE”, “PNG”, “JP2L”, and “JP2”. Lossless compression or no compression is preferred to preserve image quality. Typically image submissions use the PNG format.

Note that the baseline JPEG algorithm (*ISO/IEC 10918*) is **not** acceptable for iris images and shall **not** be used; it has been shown to increase false match rates due to the presence of tiling artifacts.⁴

10.4.2 Iris Image Color Space

The Pilot supports the ANSI/NIST-ITL field 17.013 Color Space (CSP) values. However, typical Pilot submissions use the 17.025 Effective Acquisition Spectrum (EAS) value “NIR”. When EAS=NIR the CSP must be set to “GRAY”.

10.4.3 Iris Image Eye Color

The Pilot supports the ANSI/NIST-ITL field 17.020 Eye Color (ECL) values. Typical Pilot submissions use CSP=GRAY which requires ECL=XXX. The ECL is set to the eye color as it appears in the image for other CSP values.

10.4.4 Iris Image Effective Acquisition Spectrum

The Pilot supports the ANSI/NIST-ITL field 17.025 Effective Acquisition Spectrum (EAS) values “NIR”, “VIS”, “RED”, and “UNDEFINED”. The value of “DEFINED” shall not be used.

Most transactions are expected to use the value “NIR” while some investigative searches may use the value “VIS”.

⁴ *Iris Compression – Effects of JPEG2000 Compression on Iris Identification*, briefing slides, The MITRE Corporation, 9 October 2012, limited distribution.

11 TYPES OF TRANSACTIONS (TOT)

Pilot transactions, records, and fields are based on the definitions in FBI EBTS and ANSI/NIST-ITL 1-2011 Update: 2013 specifications. Behavior not specified in this document should be assumed to follow these foundational standards. Appendix C: Sample Record Layouts provides the layouts for Iris Pilot Type-1, Type-10, and Type-17 records as well as the Type-2 record layout for each Pilot transaction.

The primary iris enrollment method is to submit two Type-17 Iris Image records on an NGI criminal tenprint submission (e.g. CAR). Iris submission via the CAR is a preexisting NGI functionality defined in EBTS when using the Type-17 record layout in this specification.

11.1 Transaction Overviews

The following tables summarize services and types of transactions (TOTs) provided by the Pilot.

Table 11-1 Transaction Submission, Response, and Error TOTs

Transaction	Submission TOT	Response TOT	Error TOT
Data Management Service			
Biometric Delete Request	BDEL	BDELR	ERRA
Biometric Image Submission	FIS	FISR	ERRA
Identification Service			
Iris Image Identification Submission	IIDS	SRE	ERRB
Information Service			
Biometric Image/Feature Retrieval Request	IRQ	IRR ⁵ ISR	ERRI
Investigation Service			
Iris Image Investigation Search	IIS	SRB	ERRB
NGI Tenprint Transactions (not a pilot service)			
Criminal Tenprint Submission (Answer Required)	CAR	SRE, FISR ⁶	ERRT ⁷ ERRA ⁸

⁵ An IRQ may produce a large number of IRR transactions.

⁶ Returned if NGI CAR / Iris Pilot processing succeed and the Pilot confirmation is enabled for the submitter.

⁷ Prevents processing of iris images in the Pilot. No FISR or ERRA will be returned.

⁸ Returned if NGI CAR processing succeeds, iris image processing fails, and the Pilot confirmation is enabled for the submitter.

UNCLASSIFIED

Table 11-2 Maximum Transaction Response Times

Transaction	Submission TOT	Maximum Response Time
Data Management Service		
Biometric Delete Request	BDEL	15 minutes
Biometric Image Submission	FIS	15 minutes
Identification Service		
Iris Image Identification Submission	IIDS	15 minutes ⁹
Information Service		
Biometric Image/Feature Retrieval Request	IRQ	5 minutes
Investigation Service		
Iris Image Investigation Search	IIS	15 minutes
NGI Tenprint Transactions (not a pilot service)		
Criminal Tenprint Submission (Answer Required)	CAR	See EBTS

Response times are measured from the time a request is received at the FBI CJIS Division until the response is returned to the FBI CJIS Division firewall. Transmission to and from FBI CJIS Division are not included as part of maximum response times.

When iris images are enrolled via NGI criminal tenprint submission, there is a delay up to 5 minutes between tenprint processing and iris enrollment.

⁹ Iris Pilot 2015 average Iris Image Identification Submission (IIDS) response time was 1.0 seconds

UNCLASSIFIED

Table 11-3 Transaction Record Type Requirements

Transaction	TOT	Type-1	Type-2	Type-10	Type-17
Data Management Service					
Biometric Delete Request	BDEL	1	1		
Biometric Delete Request Response	BDELR	1	1		
Biometric Image Submission	FIS	1	1	0-1	2
Biometric Image Submission Response	FISR	1	1		
Identification Service					
Iris Image Identification Submission	IIDS	1	1		2
Search Results – Electronic	SRE	1	1	0-1	
Information Service					
Biometric Image/Feature Retrieval Request	IRQ	1	1		
Image Request Response	IRR	1	1	0-1	0-2
Image Summary Response	ISR	1	1		
Investigation Service					
Iris Image Investigation Search	IIIS	1	1		1
Search Results Biometric	SRB	1	1		0-51
NGI Tenprint Transactions (not a pilot service)					
Criminal Tenprint Submission (Answer Required)	CAR	1	1	See EBTS	0,2
Search Results – Electronic	SRE	1	1	See EBTS	
Tenprint Transaction Error Response	ERRT	1	1		
Pilot Error Responses					
Administrative Transaction Error Response	ERRA	1	1		
Biometric Search Error Response	ERRB	1	1		
Information Transaction Error Response	ERRI	1	1		

Appendix C: Sample Record Layouts provides information on the allowed, required, and optional fields for each record type for each Pilot TOT.

The NGI tenprint transactions allow additional records not specified in this document. See EBTS for details.

11.2 Data Management Service

The data management service allows iris and face images to be added to or removed from enrollments in the Pilot repository.

The data management service transactions are based on the NGI transactions of the same name. This document specifically describes and only applies to the Iris Pilot transactions. The NGI data management service cannot be used with the Iris Pilot repository. The Iris Pilot data management service may only add or remove iris and face images from the Pilot repository. The Iris Pilot data management service cannot be used to add or remove images from NGI.

11.2.1 Biometric Image Submission (FIS)

The FIS requires two iris records with the 2.014 FBI Number (FNU) / Universal Control Number (UCN) and either the 2.038 Date Printed (DPR) or 2.2035 Event Identifier (EVI). At least one of the iris records must contain an iris image. One optional front face image may also be included.

See 8.2 Biometric Image Submission (FIS) Format for Pilot specific behaviors.

See C.2.3 Biometric Image Submissions (FIS).

11.2.2 Biometric Image Submission Response (FISR)

The FISR is returned for successful enrollments. The 2.2061 Biometric Image Enrollment (BIE) field indicates the enrolled image sets – an iris image set will always be present – and provides the Biometric Set Identifier (BSI) which may be used in a subsequent Biometric Image/Feature Retrieval Request (IRQ) or Biometric Delete Request (BDEL).

Possible enrollment outcomes, responses, and status/error messages can be found in 11.6 Status/Error Messages specifically Table 11-5 Iris Pilot Error Messages and Table 11-6 Enrollment Scenario Status/Error Messages.

See C.2.4 Biometric Image Submission Response (FISR).

11.2.3 Administrative Transaction Error Response (ERRA) – FIS

The ERRA is returned for a FIS that fails validation or when enrollment completely fails. Enrollment via FIS is considered a failure when no iris images are enrolled. Errors are listed in the 2.060 Status/Error Message (MSG) field using the messages from Table 11-5 Iris Pilot Error Messages.

Possible enrollment outcomes, responses, and status/error messages can be found in 11.6 Status/Error Messages specifically Table 11-5 Iris Pilot Error Messages and Table 11-6 Enrollment Scenario Status/Error Messages.

See C.6.1 Administrative Transaction Error Response (ERRA).

11.2.4 Biometric Delete Request (BDEL)

The BDEL allows record owners to delete biometric images. The owner is defined as the first 2.073 Controlling Agency Identifier (CRI) entry (i.e. CRI1) on the enrollment submission.

The BDEL requires the 2.014 FBI Number (FNU) / Universal Control Number (UCN) and 2.2029 Biometric Set Identifier (BSI) for the images to be deleted.

See C.2.1 Biometric Delete Request (BDEL).

11.2.5 Biometric Delete Response (BDELRL)

The BDELRL is returned for successful delete requests. The BDELRL contains the FNU/UCN associated with the deleted images.

See C.2.2 Biometric Delete Response (BDELRL).

11.2.6 Administrative Transaction Error Response (ERRA) – BDEL

The ERRA is returned for a BDEL that fails validation, requests deletion of non-existent records, or requests an unauthorized delete. Delete requests are only authorized for record owners. Errors will be listed in the 2.060 Status/Error Message (MSG) field using the messages from Table 11-5 Iris Pilot Error Messages.

See C.6.1 Administrative Transaction Error Response (ERRA).

11.3 Identification Service

The identification service allows the submission of one or two iris images from an individual and provides a match or non-match response. When probe images match an identity above a predetermined confidence threshold, the match is returned. Matches return information from the Iris Pilot repository and NCIC. An error message will be returned in the unlikely event that two distinct identities are matched and FBI CJIS will attempt to resolve the issue.

11.3.1 Iris Image Identification Submission (IIDS)

The IIDS requires two iris records. At least one record must contain an iris image. Iris images must be from the same individual.

No data entry is necessary unless an iris cannot be imaged. Missing iris images require submission of a 17.028 Damaged or Missing Eye (DME) code. The 2.018 Name (NAM) must be submitted with each IIDS, but the name can be programmatically set to “DOE,JOHN” or “DOE,JANE” to indicate the name is unknown. Optionally, several other fields may be submitted.

The optional field 2.096 Request Photo Record (RPR) may be set to “Y” to request a front face image with a match. Front face images are only available when enrolled with iris images.

See C.3.1 Iris Image Identification Submission (IIDS).

11.3.2 Submission Results – Electronic (SRE)

The SRE is returned for successful identification searches that result in either a match or non-match. If two iris images were submitted and one iris image fails to template (i.e. cannot be prepared for matching), the IRP003 “Unable to generate template” error message will be included in the 2.060 Status/Error Message (MSG) field. The search should be resubmitted with two higher-quality iris images.

The SRE includes the following caveat in the 2.088 Note (NOT) field.

This response is based on a search of only the Iris Pilot (IP) iris image repository and does not preclude a record from existing in other biometric or name based repositories. Users are permitted to rely on the IP response in conjunction with other law enforcement tools but shall not rely solely on the IP response for additional law enforcement action.

See C.3.2 Submission Results – Electronic (SRE).

11.3.2.1 SRE – Identification

Identification SRE responses set the 2.059 Search Results Finding (SRC) field to “Y” and provide the matched 2.014 FBI Number (FNU)/Universal Control Number (UCN) and 2.018 Name (NAM) fields. When available, the response includes the 2.2023 Supplementary Identity Information (SII) and 2.2035 Event Identifier (EVI) fields. The 2.015 State Identification Number (SID) field is included when a SID for the submitting state is found. If the IIDS included a photo request and a photo has been enrolled in the Pilot with the identity, the photo will be included in the response.

The name returned is the Master Name – the original name used to establish the identity – and may not be the name currently in use by the individual. A criminal identity history can provide all names submitted for the identity.

The SII field contains the results of an NCIC search using the FNU/UCN for the identity. The results include a list of identifiers and case numbers for each person file that contains the identity (e.g. Wants/Warrants, Sex Offenders, etc.). The SII contains caution and medical codes (e.g. armed and dangerous, seizures) and handling caveats for Known or Appropriately Suspected Terrorists (KSTs) when available. Additionally, if an active want/warrant is found, the offense (e.g. parole violation), original offense (e.g. assault), and wanting agency are included. See Appendix D: Supplementary Identity Information.

11.3.2.2 SRE – Non-Identification

Non-identification SRE responses include the submitted values for 2.014 SID and 2.018 NAM. The 2.059 Search Results Findings (SRF) field will be set to “N”.

11.3.3 Biometric Search Error Response (ERRB)

An ERRB is returned when an IIDS fails validation, does not contain any iris images suitable for searching, or results in a match against multiple identities. Errors will be listed in the 2.060 Status/Error Message (MSG) field using the messages from Table 11-5 Iris Pilot Error Messages.

See C.6.2 Biometric Search Error Response (ERRB).

11.4 Information Service

The information service allows retrieval of Pilot images through the submission of identifiers for individuals, image sets, or individual images. Valid identifiers can return iris images and/or face images stored in the Iris Pilot repository. An error message will be returned for invalid identifiers and an error transaction for failed validation.

The information service transactions are based on the NGI transactions of the same name. This document specifically describes and only applies to the Iris Pilot transactions. The NGI information service cannot be used with the Iris Pilot repository. The Iris Pilot information service may only retrieve iris and face images from the Pilot repository. The Iris Pilot information service cannot be used to retrieve images from NGI.

11.4.1 Biometric Image/Feature Retrieval Request (IRQ)

The IRQ requires the 2.2078 Biometric Image Description (BID) include the FBI Number/UCN in the 2.2028a Subject Identifier (SI). If the SI is found, available images for the subject will be returned.

The BID also includes additional items allowing specific imagery to be requested including the 2.2028b Image Type (IMT), the 2.2028c Biometric Set Identifier (BSI), and the 2.2028h Eye Label (ELR). See EBTS for additional details on the BID field. Pilot use of the information items in the BID is detailed in Table 11-4 IRQ Response Images from BID Information Items.

Successful IRQs result in two types of responses including one Image Summary Response (ISR) and one or more Image Request Response (IRR).

Table 11-4 IRQ Response Images from BID Information Items

2.2028 BID Items Included in IRQ	Response
SI	Most recent iris images and most recent face image One IRR per SI
SI and IMT	Most recent images of type IMT One IRR per SI
SI and BSI	Event images (Iris or Face) One IRR per SI
SI, IMT, ELR (where IMT=11 for iris)	Most recent iris image for requested Eye Label One IRR per SI
SI, BSI, ELR (where IMT=11 for iris)	Event iris image for requested Eye Label One IRR per SI

The BID allows imagery for up to 1,000 subjects to be requested per IRQ. Each BID entry will be addressed in a separate response.

See C.4.1 Biometric Image/Feature Retrieval Request (IRQ).

11.4.2 Image Request Response (IRR)

The IRR is returned for successful IRQs that locate the desired imagery. A separate IRR is provided for each successful BID entry in the IRQ and each biometric image set (i.e. iris image(s) or face image). Therefore, up to two IRRs may be produced for each BID entry.

See C.4.2 Image Request Response (IRR).

11.4.3 Image Summary Response (ISR)

The ISR is returned for successful IRQs to summarize the individual IRR responses.

The ISR includes the 2.014 FBI Number/UCN, 2.015 Sate Identification Number (SID), 2.062 Image Type (IMT), and 2.2029 Biometric Set Identifier (BSI) for each IRR listed in the same order. For example, the first FNU, SID, IMT, and BSI all correspond to the same IRR.

The 2.060 Status/Error Message (MSG) field includes an identifier and error message for each requested image set that could not be returned due to an invalid identifier or lack of images on file.

See C.4.3 Image Summary Response (ISR).

11.4.4 Information Transaction Error Response (ERRI)

An ERRI is returned when an IRQ fails validation. Errors will be listed in the 2.060 Status/Error Message (MSG) field using the messages from Table 11-5 Iris Pilot Error Messages.

See C.6.3 Information Transaction Error Response (ERRI).

11.5 Investigation Service

The investigation service allows the submission of one iris image and provides a list of potential matches in response. The investigation search should be used for iris images from conventional cameras and low-quality iris images unsuitable for identification. Unlike the identification search, potential matches are not required to meet a confidence threshold.

The accuracy of investigation searches, particularly when using images captured with visible light, is not yet well understood. The Pilot is used to evaluate investigation searches and identify areas needing further research.

11.5.1 Iris Image Investigation Search (IIIS)

The IIIS requires a single iris image. The search includes all enrollments for all identities in the Pilot repository.

The 2.010 Contributor Case Identifier Number (CIN) must be provided with each IIIS. Additional data entry is optional.

The optional field 2.079 Number of Candidates Requested (NCR) can be included to request between 2 and 50 candidates. NCR defaults to 20 when not provided.

The following optional fields can be used to filter the search:

- 2.020 Place of Birth (POB)
- 2.021 Country of Citizenship (CTZ)
- 2.022 Date of Birth (DOB)
- 2.023 Age Range (AGR)
- 2.024 Sex (SEX)
- 2.025 Race (RAC)
- 2.026 Scars, Marks, and Tattoos (SMT)
- 2.028 Height Range (HTR)
- 2.030 Weight Range (WTR)
- 2.031 Eye Color (EYE)
- 2.032 Hair Color (HAI)

For filtering, the supplied Eye Color is compared to the Eye Color provided during enrollment for the individual (i.e. the 2.2031 field) and not in the individual Type-17 records. See 7.2 Search Filters for filtering guidance.

See C.5.1 Iris Image Investigation Search (IIS).

11.5.2 Search Results Biometric (SRB)

The SRB is returned for successful investigation searches. The SRB will return the submitted probe iris image as the first Type-17 record and include a Type-17 record for each potential candidate. The number of candidates returned and candidate images returned are specified in fields 2.079 NCR and 2.2010 Number of Images Requested (NIR) respectively. The NCR will always be equal to the NIR for Pilot transactions.

The 2.2033 Candidate Investigative List (CNL) provides information for each candidate image returned including the 2.2033a Subject Identifier (SI) which contains the FBI Number/UCN.

The 2.2073 Biometric Image List (BIL) provides information necessary to create Biometric Image/Feature Retrieval Requests (IRQs). The IRQ allows additional face and iris images to be retrieved from the Pilot.

The SRB includes the following caveat in the 2.088 Note (NOT) field.

The candidate identities returned from an IIS in the resulting SRB response shall be considered potential candidate matches or investigative leads requiring further verification. Users should not rely solely on IIS search responses as the impetus for any law enforcement action. Instead, search results serve as potential links between submitted images and true identities that must be independently verified.

See C.5.2 Search Results Biometric (SRB).

11.5.3 Biometric Search Error Response (ERRB)

An ERRB is returned when an IIS fails validation, does not contain an iris image suitable for searching, or produces only a single candidate. Errors are listed in the 2.060 Status/Error Message (MSG) field using the messages from Table 11-5 Iris Pilot Error Messages.

See C.6.2 Biometric Search Error Response (ERRB).

11.6 Status/Error Messages

The transaction error responses pertinent to the Pilot are ERRA, ERRB, and ERRI. Refer to Appendix M in EBTS for details about NGI error messages. See 8.7 Special Error Messages for details about error messages prefixed with “IRP”.

Table 11-5 Iris Pilot Error Messages

Code	Error Condition	Error Message	Insert #1	Insert #2
A0004	Unauthorized EBTS Transaction	Requestor is not authorized for transaction type %1.	TOT of incoming message	
B0002	Corrupt image	The submitted image is corrupted		
E0001	Required element missing	Mandatory element %1 was not supplied in message.	Element Name	
E0002	Element failed validation	Element %1, with value of [%2] contains invalid data.	Element Name	Element Value
E0003	Element failed validation	Element %1, with value of [%2] contains invalid data. The data may not comply with the acceptable range of values.	Element Name	Element Value
E0004	EBTS record parse error	EBTS logical record type %1 containing IDC of [%2] in message does not comply with message Contents or Length field values or the record is not parseable.	Logical Record Type	IDC value or the value -1 if the named logical record is missing or is a Type-1 record.
E0005	EBTS field parse error	EBTS field %1 could not be parsed. Check use of separator characters and presence of all required subfields.	Field Tag	
E0012	Message Length Inconsistent	The length of the CJIS WAN message is inconsistent with the sum of the lengths of the logical records contained within it.		
L0002	Subject does not exist in repository	Subject with identifier %1 does not exist in repository.	FBI [UCN]	
L0006	Invalid image type	The supplied image(s) could not be used for characterization of subject.		
L0013	General Logic Error	A general logic error was detected that is not currently defined. Optional error message: %1	Free text	
L0151	Photo not available	Photo Not Available		
IRP001	Invalid Eye Position combination	The submitted Eye Positions do not logically correspond.		
IRP002	Invalid Image Identity Association	The submitted search requires CJIS to adjudicate image.		
IRP003	Unable to generate template	A template could not be created for the submitted image %1 %2.	Element Name	Element Value
IRP004	Missing iris images	The submitted search requires at least one iris image. No images provided.		
IRP010	No enrollment images	The biometric image submission requires at least one iris image. No images were provided.		

UNCLASSIFIED

The Pilot may provide informational messages in addition to warnings for various enrollment submission scenarios. The messages vary slightly depending on whether the enrollment uses an NGI tenprint submissions like the Criminal Tenprint Submission (CAR) or instead uses the Pilot-specific Biometric Image Submission (FIS). The messages will be inserted in the 2.060 Status/Error Message (MSG) field.

Successful enrollment results in the population of the 2.2061 Biometric Image Enrollment (BIE) field with the Biometric Set Identifier (BSI) and Image Type (IMT) for each set of images (iris or face) enrolled.

Table 11-6 Enrollment Scenario Status/Error Messages

Images	Results	Response	Message	BIE
Primary Enrollment Method (e.g. CAR)				
2 x iris	2 enrolled	SRE / FISR	-	Yes
2 x iris	1 enrolled 1 rejected	SRE / FISR	IRP003	Yes
2 x iris	2 rejected	SRE / ERRA	IRP003 x 2	-
1 x iris	1 enrolled	SRE / FISR	The enrollment transaction contained only one iris image.	Yes
1 x iris	1 rejected	SRE / ERRA	IRP003	-
0 x iris	-	SRE / FISR	The enrollment transaction did not contain any iris image data.	No
Secondary Enrollment Method (i.e. FIS)				
2 x iris	2 enrolled	FISR		Yes
2 x iris	1 enrolled 1 rejected	FISR	IRP003	Yes
2 x iris	2 rejected	ERRA	IRP003 x 2	-
1 x iris	1 enrolled	FISR	The enrollment transaction contained only one iris image.	Yes
1 x iris	1 rejected	ERRA	IRP003	-
0 x iris	-	ERRA	L0013 ¹⁰	-

The above table documents possible outcomes for enrollment submissions including response TOTs, status/error messages, and whether or not the BIE is present and populated.

¹⁰ The generic L0013 error will be replaced by the more specific IRP010 in a future Pilot update.

12CONTACT INFORMATION

Table 12-1 Iris Pilot Contact Information

	Name	Title	Phone	Email
Iris Pilot Manager	Nick Megna	Unit Chief	(304) 625-2767	nicky.megna@ic.fbi.gov
Iris Pilot Task Lead	Justin Smith	Supervisory IT Specialist	(304) 625-5333	justin.smith@ic.fbi.gov

APPENDIX A: ACRONYMS

List of acronyms and field mnemonics used within this document.

AGR	Age Range
ANSI	American National Standards Institute, Inc.
APN	Application Profile Name
APO	Application Profile Organization
APS	Application Profile Specifications
APV	Application Profile Version Number
ASCII	American Standard Code for Information Interchange
BDEL	Biometric Delete Request
BDEL R	Biometric Delete Response
BIA	Biometric Image Available
BID	Biometric Image Description
BIE	Biometric Image Enrollment
BIL	Biometric Image List
BSI	Biometric Set Identifier
CAR	Criminal Tenprint Submission [Answer Required]
CJIS	Criminal Justice Information Services
CNA	Criminal Tenprint Submission [No Answer Necessary]
CGA	Compression Algorithm
CIN	Contributor Case Identifier Number
CMC	Caution and Medical Codes
CNL	Candidate Investigative List
CONOPS	Concept of Operations
CSA	CJIS Systems Agency
CSP	Color Space
CTZ	Country of Citizenship
DME	Damaged or Missing Eye
DNM	Domain Name (information item)
DOB	Date of Birth
DOM	Domain Name (field)
DVN	Domain Version Number
EAS	Effective Acquisition Spectrum
EYE	Eye Color
DPR	Date Printed
EBTS	Electronic Biometric Transmission Specification
ECL	Eye Color
ELR	Eye Label
ERRA	Administrative Transaction Error Response
ERRB	Biometric Search Error Response
ERRI	Information Transaction Error Response
ERRT	Tenprint Transaction Error Response

UNCLASSIFIED

EVI	Event Identifier
FBI	Federal Bureau of Investigation
FIS	Biometric Image Submission
FISR	Biometric Image Submission Response
FNU	FBI Number
HAI	Hair Color
HTR	Height Range
IAP	Iris Acquisition Profile
IDC	Information Designation Character
IIDS	Iris Image Identification Submission
IEC	International Electrotechnical Commission
IIS	Iris Image Investigation Search
IMT	Image Type
IP	Iris Pilot
IPR	Iris Pilot Repository
IREX	Iris Exchange [technical evaluation program at NIST]
IRQ	Biometric Image/Feature Retrieval Request
IRR	Image Request Response
ISF	Image Storage Format
ISR	Image Summary Response
ISO	International Standards Organization
ITL	Information Technology Laboratory
JP2	JPEG2000 ISO/IEC 15444-1 [Lossy]
JP2L	JPEG2000 ISO/IEC 15444-1 [Lossless]
JPEG	Joint Photographic Experts Group
JTC	Joint Technical Committee
KST	Known or Appropriately Suspected Terrorist
MIME	Multipurpose Internet Mail Extensions
MOU	Memorandum of Understanding
MSG	Status/Error Message
NAM	Name
NCIC	National Crime Information Center
NCR	Number of Candidates Returned
NGI	Next Generation Identification
NIC	NCIC Number
NIR	1. Near-infrared 2. Number of Images Requested
NIST	National Institute of Standards and Technology
NOT	Note
OCA	Originating Agency Case Number
OFF	Offense
OOC	Original Offense
ORI	Originating Agency Identifier
PNG	Portable Network Graphics
POB	Place of Birth

UNCLASSIFIED

POS	Subject Pose
RAC	Race
RGB	Red, Green, Blue Color Model
RPR	Request Photo Record
SAP	Subject Acquisition Profile
SC	Subcommittee
SEX	Sex
SI	Subject Identifier
SIB	State Information Bureau
SID	State Identification Number
SII	Supplementary Identity Information
SMT	Scars, Marks, and Tattoos
SMTP	Simple Mail Transfer Protocol
SRB	Search Results Biometric
SRE	Submission Results – Electronic
SRF	Search Results Findings
TOT	Type of Transaction
TOU	Technical and Operational Update
UCN	Universal Control Number
WAN	Wide Area Network
WTR	Weight Range
XML	Extensible Markup Language

APPENDIX B: REFERENCES

[ANSI/NIST-ITL] NIST Special Publication 500-290 -- ANSI/NIST-ITL 1-2011 — *Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information*, approved November 2011, <http://Fingerprint.NIST.Gov/Standard/>

[CJIS SECURITY POLICY] Criminal Justice Information Services (CJIS) Security Policy, Latest Version, <https://www.fbi.gov/about-us/cjis/cjis-security-policy-resource-center/>

[FBI EBTS] FBI CJIS *Electronic Biometric Transmission Specification* (EBTS), Latest Version, <https://www.fbi/ebtspecs.cjis.gov/EBTS/Approved>

[IP BULK ENROLLMENT MOU] Memorandum of Understanding (MOU) Between the Federal Bureau of Investigation (FBI) and the (State/Agency) for Bulk Submission of Iris Images for Inclusion into the Next Generation Identification (NGI) Iris Pilot Repository (IPR)

[IP CONOPS] Iris Pilot Concept of Operations (CONOPS), Version 2.0

[IP PARTICIPATION MOU] Memorandum of Understanding (MOU) Between the Federal Bureau of Investigation (FBI) and the (State/Agency) for Participation in the Next Generation Identification (NGI) Iris Pilot (IP)

[IREX I] Grother, P., Tabassi, E., Quinn, G. W. and Salamon, W., *IREX I – Performance of Iris Recognition Algorithms on Standard Images*, NIST Interagency Report 7629, October 30, 2009, http://biometrics.nist.gov/cs_links/iris/irex/irex_report.pdf.zip

[IREX II] Tabassi, E., Grother, P., and Salamon, W., *IREX II – Iris Quality Calibration and Evaluation – Performance of Iris Image Quality Assessment Algorithms*, NIST Interagency Report 7629, September 30, 2011, http://biometrics.nist.gov/cs_links/iris/irexII/iqce_report.pdf.zip

[IREX III] Grother, P., Quinn, G. W., Matey, J. R., et al., *IREX III – Performance of Iris Identification Algorithms*, NIST Interagency Report 7836, April 9, 2012,
Report: http://biometrics.nist.gov/cs_links/iris/irexIII/IREXIII_full.zip,
Appendices: http://biometrics.nist.gov/cs_links/iris/irexIII/IREXIII_appendices.zip

[IREX V MAIN] IREX V: Guidance for Iris Image Collection, <http://www.nist.gov/itl/iad/ig/irexv.cfm>

[IREX V REPORT] Quinn, G., Matey, J., Tabassi, E., Grother, P., *IREX V - Guidance for Iris Image Collection*, NIST Interagency Report 8013, July 2, 2014, http://biometrics.nist.gov/cs_links/iris/irexV/IREX_V_Report.pdf

[MOBILE ID] NIST Special Publication 500-280 – *Mobile ID Device Best Practice Recommendation*, Version 1.0, August 2009, <http://www.nist.gov/itl/iad/ig/upload/MobileID-BPRS-20090825-V100.pdf>

[SC37 FRAMEWORK] ISO/IEC JTC 1/SC 37, 19794-1:2011, Information technology – Biometric data interchange formats – Part 1: Framework, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=50862

[SC37 IRIS IMAGE] ISO/IEC 19794-6:2011, Information technology – Biometric data interchange formats – Part 6: Iris image data, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=50868

[SC37 IRIS QUALITY] ISO/IEC JTC 1/SC 37, N4886, CD 29794-6, Biometric sample quality – Part 6: Iris image data (2/17/12, development in progress)

APPENDIX C: SAMPLE RECORD LAYOUTS

Sample record implementations are provided using fictitious data. The first set of tables document the Type-2 record layout for each Iris Pilot type of transaction (TOT). The second set of tables document the Type-1, Type-10, and Type-17 record layouts. The Pilot makes use of separate Type-17 layouts for records with iris images and records without iris images. See Table 11-3 Transaction Record Type Requirements for a summary of the records used for each TOT.

The TOTs are presented with the fields used in the Pilot. NGI versions of these TOTs may have differing requirements. Fields that are not present in a record layout are not allowed. The minimum occurrences for a field indicates whether the field is mandatory or optional (i.e. MIN=0 is optional and MIN=1 is mandatory).

Constant field values and special limitations or exceptions are documented in footnotes.

C.1 Type-1 Record Sample

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
1.001	LEN	Logical Record Length	1	1	122
1.002	VER*	Version Number	1	1	0500
1.003	CNT	File Content	1	1	
	FRC	First Record Category Code	1	1	1
	CRC	Content Record Count	1	1	01
	REC	Record Category Code	1	99	02
	IDC	Information Designation Character	1	99	00
1.004	TOT	Type of Transaction	1	1	SRE
1.005	DAT	Date	1	1	20101025
1.006	PRY	Transaction Priority	0	1	1
1.007	DAI	Destination Agency ID	1	1	WVMEDS001
1.008	ORI	Originating Agency ID	1	1	WVMEDS002
1.009	TCN	Transaction Control Number	1	1	DUMMYTCN_DUMMYTCN
1.010	TCR†	Transaction Control Reference	0	1	DUMMYTCR_DUMMYTCR
1.011	NSR*	Native Scanning Resolution	1	1	00.00
1.012	NTR*	Nominal Resolution	1	1	00.00
1.013	DOM*	Domain Name	1	1	
a	DNM	Domain Name	1	1	NORAM
b	DVN	Domain Version Number	1	1	EBTS 10.0
1.016	APS*‡	Application Profile Specifications		1	
a	APO	Application Profile Organization	1	1	NGI
b	APN	Application Profile Name	1	1	IRP
c	APV	Application Profile Version Number	1	1	1.0

* Field value is constant for Pilot.

† Submitted TCR values are not tracked or stored by the Pilot.

‡ The Pilot-specific APS values must not be used for NGI transactions (e.g. CAR) but is required for all other Pilot transactions (i.e. IIDS, IIS, FIS, BDEL, IRQ) and responses.

C.2 Type-2 Record Sample – Data Management Service

C.2.1 Biometric Delete Request (BDEL)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	215
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.014	FBI / UCN	FBI Number / Universal Control Number	*	1	123456789
2.073	CRI	Controlling Agency Identifier	1	3	WVMEDS001
2.2029	BSI	Biometric Set Identifier	*	1	1234567

C.2.2 Biometric Delete Response (BDEL R)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	215
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.014	FBI / UCN	FBI Number / Universal Control Number	1	25	123456789
2.060	MSG	Status/Error Message	0	1	
2.073	CRI	Controlling Agency Identifier	1	3	WVMEDS001

* This optional field is required for Pilot transactions.

C.2.3 Biometric Image Submissions (FIS)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	215
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.014	FBI / UCN	FBI Number / Universal Control Number	1	1	123456789
2.015	SID	State Identification Number	0	1	NY12345678
2.018	NAM	Name	0	1	DOE,JOHN
2.038	DPR	Date Printed	1	1	19790815
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001
2.2035	EVI	Event Identifier	0	1	987654321

C.2.4 Biometric Image Submission Response (FISR)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	215
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.014	FBI / UCN	FBI Number / Universal Control Number	1	1	123456789
2.015	SID	State Identification Number	0	1	NY12345678
2.018	NAM	Name	0	1	DOE,JOHN
2.060	MSG	Status/Error Message	0	11	IRP003 A template could not be created for the submitted image ELR: 1.
2.073	CRI	Controlling Agency Identifier	1	3	WVMEDS001
2.2061	BIE	Biometric Image Enrollment	0	61	
a	BSI	Biometric Set Identifier	1	1	1234567
b	IMT	Image Type	1	1	9
c	POS	Subject Pose	0	1	F
d	SMT	Scars, Marks, and Tattoos	0	1	*

* This information item will always be empty for Pilot transactions. It must be included for validation purposes.

C.3 Type-2 Record Sample – Identification Service

C.3.1 Iris Image Identification Submission (IIDS)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Image Designation Character	1	1	00
2.006	ATN	Attention Indicator	0	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.009	OCA	Originating Agency Case Number	0	1	Q880312465
2.014	FBI/UCN	FBI Number / Universal Control Number	0	1	123456789
2.015	SID	State Identification Number	0	1	NY12345678
2.017	MNU	Miscellaneous Identification Number	0	4	PP-1234567890P
2.018	NAM*	Name	1	1	DOE,JOHN
2.073	CRI	Controlling Agency Identifier	1	3	WVMEDS001
2.096	RPR	Request Photo Record	0	1	Y

* The NAM can be programmatically set to “DOE,JOHN” or “DOE,JANE” to eliminate operator data entry.

C.3.2 Submission Results – Electronic (SRE)

Example shows a match.

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Image Designation Character	1	1	00
2.006	ATN	Attention Indicator	0	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.009	OCA	Originating Agency Case Number	0	1	Q880312465
2.014	FBI/UCN	FBI Number/ Universal Control Number	0	1	123456789
2.015	SID	State Identification Number	0	1	NY12345678
2.018	NAM	Name	1	1	DOE,JOHN
2.059	SRF	Search Result Findings	1	1	Y
2.060	MSG	Status/Error Message	0	11	MATCH MADE AGAINST SUBJECTS IRIS ON 05/01/94.{RS}IRP003 A template could not be created for the submitted image ELR: 2.
2.073	CRI	Controlling Agency Identifier	1	3	WVMEDS001
2.088	NOT*	Note Field	1	1	This response is based on a search of only the Iris Pilot (IP) iris image repository and does not preclude a record from existing in other biometric or name based repositories. Users are permitted to rely on the IP response in conjunction with other law enforcement tools but shall not rely solely on the IP response for additional law enforcement action.
2.2023	SII*	Supplementary Identity Information	0	1	00 – ARMED AND DANGEROUS
2.2031	BIA	Biometric Image Available	0	1	40
2.2035	EVI	Event Identifier	0	1	987654321

* The NOT and SII fields are special additions to the SRE for the Pilot.

C.4 Type-2 Record Sample – Information Service

C.4.1 Biometric Image/Feature Retrieval Request (IRQ)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001
2.2028	BID*	Biometric Image Description	*	1000	
a	SI	Subject Identifier (FBI Number / UCN)	1	1	123456789
b	IMT	Image Type	0	1	9
c	BSI	Biometric Set Identifier	0	1	123456789123
d	FNR†	Finger Number Requested	0	1	†
e	PPD†	Print Position Descriptors	0	1	†
f	POS	Subject Pose	0	1	F
g	SMT†	NCIC SMT Code (Scar, Mark, Tattoo)	0	1	†
h	ELR‡	Eye Label	0	1	1

* This optional field will always be present for Pilot transactions.

† This information item will always be empty for Pilot transactions. It must be included for validation purposes.

‡ The 2.2028h Eye Label (ELR) information item is a special addition to the IRQ BID field for the Pilot.

C.4.2 Image Request Response (IRR)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.014	FBI/UCN	FBI Number / Universal Control Number	1	1	123456789
2.015	SID	State Identification Number	0	1	NY12345678
2.018	NAM	Name	0	1	DOE,JOHN Q
2.036	PHT	Photo Available Indicator	0	1	Y
2.062	IMT	Image Type	0	1	11
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001
2.2029	BSI	Biometric Set Identifier	0	1	123456789123
2.2031	BIA	Biometric Image Available	0	1	40

C.4.3 Image Summary Response (ISR)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.014	FBI/UCN	FBI Number / Universal Control Number	0	1000	123456789
2.015	SID	State Identification Number	0	1000	NY12345678
2.060	MSG	Status/Error Message	0	1000	
2.062	IMT	Image Type	0	1000	11
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001
2.2029	BSI	Biometric Set Identifier	0	1000	123456789123

C.5 Type-2 Record Sample – Investigation Service

C.5.1 Iris Image Investigation Search (IIIS)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	215
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.010	CIN	Contributor Case Identifier Number	1	1	
a	CIN_PRE	Contributor Case Prefix	1	1	Investigation No.
b	CIN_ID	Contributor Case ID	1	1	1963BRT715
2.011	CIX	Contributor Case ID Extension	1	1	999
2.017	MNU	Miscellaneous Identification Number	0	4	PP-1234567890P
2.018	NAM	Name	0	1	DOE,JOHN
2.020	POB	Place Of Birth	0	1	AA
2.021	CTZ	Country Of Citizenship	0	10	AA
2.022	DOB	Date Of Birth	0	1	19790815
2.023	AGR	Age Range	0	1	2535
2.024	SEX	Sex	0	1	M
2.025	RAC	Race	0	1	A
2.026	SMT	Scars, Marks, And Tattoos	0	10	TAT ARM
2.028	HTR	Height Range	0	1	400711
2.030	WTR	Weight Range	0	1	175185
2.031	EYE	Eye Color	0	1	MAR
2.032	HAI	Hair Color	0	1	GRN
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001
2.079	NCR	Number Of Candidates Returned	0	1	20

C.5.2 Search Results Biometric (SRB)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	1	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.060	MSG	Status/Error Message	0	1	
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001
2.079	NCR	Number Of Candidates Returned	1	1	20
2.088	NOT	Note Field	0	1	The candidate identities returned from an IIS in the resulting SRB response shall be considered potential candidate matches or investigative leads requiring further verification. Users should not rely solely on IIS search responses as the impetus for any law enforcement action. Instead, search results serve as potential links between submitted images and true identities that must be independently verified.
2.2010	NIR	Number Of Images Requested	1	1	20
2.2033	CNL	Candidate Investigative List	0	50	
a	SI	Subject Identifier	1	1	123456789
b	NAM	Master Name	1	1	DOE,JOHN
c	BSI	Biometric Set Identifier	1	1	1234567
d	IMT	Image Type	1	1	11
e	FGP*	Friction Ridge Generalized Position	0	1	*
f	PPD*	Print Position Descriptor	0	1	*
g	MSC	Match Score	1	1	1200
h	BIA	Biometric Image Available	1	1	40
i	NDR*	Name of Designated Repository	0	1	*
j	IDC	Information Designation Character	0	1	02
k	NOT*	Note Field	0	1	*
l	POS*	Subject Pose	0	1	*
m	SMT*	NCIC SMT Code	0	1	*
n	ELR†	Eye Label	0	1	2
2.2073	BIL	Biometric Image List	0	1000	
a	SI	Subject Identifier	1	1	123456789
b	BSI	Biometric Set Identifier	1	1	12345
c	BCD	Biometric Capture Date	1	1	20140304
d	IMT‡	Image Type	1	1	11

* This information item will always be empty for Pilot transactions. It must be included for validation purposes.

† The 2.2033n Eye Label (ELR) information item is a special addition to the SRB CNL field for the Pilot.

‡ Only iris and face images are available from the Pilot.

C.6 Type-2 Record Sample – Pilot Error Responses

C.6.1 Administrative Transaction Error Response (ERRA)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Image Designation Character	1	1	00
2.006	ATN	Attention Indicator	0	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.060	MSG	Status/Error Message	1	11	E0012 The length of the CJIS WAN message is inconsistent with the sum of the lengths of the logical records contained within it.
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001


C.6.2 Biometric Search Error Response (ERRB)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Image Designation Character	1	1	00
2.006	ATN	Attention Indicator	0	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.010	CIN	Contributor Case ID Number	0	5	
a	CIN_PRE	Contributor Case Prefix	1	1	Investigation No.
b	CIN_ID	Contributor Case ID	1	1	1963BRT715
2.011	CIX	Contributor Case ID Extension	0	5	999
2.017	MNU	Miscellaneous Identification Number	0	4	PP-1234567890P
2.060	MSG	Status/Error Message	1	11	IRP003 A template could not be created for the submitted image ELR: 2.
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001

C.6.3 Information Transaction Error Response (ERRI)

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
2.001	LEN	Logical Record Length	1	1	405
2.002	IDC	Information Designation Character	1	1	00
2.006	ATN	Attention Indicator	0	1	TEST
2.007	SCO	Send Copy To	0	9	WVMEDS001
2.014	FBI/UCN	FBI Number/ Universal Identification Number	0	1	123456789
2.015	SID	State Identification Number	0	1	NY12345678
2.060	MSG	Status/Error Message	1	11	L0002 Subject with identifier 123456789 does not exist in repository.
2.073	CRI	Controlling Agency Identifier	0	3	WVMEDS001

C.7 Type-10 Record Sample

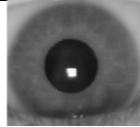
Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
10.001	LEN	Logical Record Length	1	1	40228
10.002	IDC	Image Designation Character	1	1	02
10.003	IMT	Image Type	1	1	FACE
10.004	SRC	Source Agency/ORI	1	1	WVMEDS001
10.005	PHD	Photo Date	1	1	20101025
10.006	HLL	Horizontal Line Length	1	1	480
10.007	VLL	Vertical Line Length	1	1	600
10.008	SLC	Scale Units	1	1	1
10.009	THPS	Transmitted Horizontal Pixel Scale	1	1	1
10.010	TVPS	Transmitted Vertical Pixel Scale	1	1	1
10.011	CGA	Compression Algorithm	1	1	JPEGB
10.012	CSP	Color Space	1	1	SRGB
10.013	SAP	Subject Acquisition Profile	1	1	0
10.020	POS * †	Subject Pose	*	1	F
10.999	DATA	Image Data	1	1	

* This optional field will always be present for Pilot transactions.

† Field value is constant for Pilot.

C.8 Type-17 Record Samples

C.8.1 Iris Image Present

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
17.001	LEN	Logical Record Length	1	1	35840
17.002	IDC	Image Designation Character	1	1	01
17.003	ELR	Eye Label	1	1	1
17.004	SRC	Source Agency	1	1	WVMEDS001
17.005	ICD	Iris Capture Date	1	1	20101025
17.006	HLL	Horizontal Line Length	1	1	99999
17.007	VLL	Vertical Line Length	1	1	99999
17.008	SLC	Scale Units	1	1	1
17.009	THPS	Transmitted Horizontal Pixel Scale	1	1	1000
17.010	TVPS	Transmitted Vertical Pixel Scale	1	1	1000
17.011	CGA	Compression Algorithm	1	1	NONE
17.012	BPX	Bits Per Pixel	1	1	8
17.013	CSP	Color Space	1	1	GRAY
17.014	RAE	Rotation Angle Of Eye	0	1	4000
17.015	RAU	Rotation Uncertainty	0	1	FFFF
17.016	IPC	Image Property Code	0	1	
a	IHO	Horizontal Orientation Code	1	1	1
b	IVO	Vertical Orientation Code	1	1	1
c	IST	Specific Scan Type	1	1	1
17.017	DUI	Device Unique Identifier	0	1	M0A1B2C3D4E5F
17.019	MMS	Make/Model/Serial Number	1	1	
a	MAK	Make	1	1	GenericIrisVendor
b	MOD	Model	1	1	MidGradeCam
c	SER	Serial Number	1	1	A0a0a0a0
17.020	ECL	Eye Color	0	1	XXX
17.021	COM	Comment	0	1	Free text comments about the record
17.025	EAS*	Effective Acquisition Spectrum	0	1	NIR*
17.031	IAP	Subject Acquisition Profile - Iris	0	1	40
17.032	ISF	Iris Storage Format	0	1	1
17.999	DAT	Data	1	1	 (one iris image – e.g., right eye)

* The value “DEFINED” shall not be used with Pilot submissions.

C.8.2 Iris Image Absent

Field Number	Identifier	Field Name	Occurrences		Example Data
			Min	Max	
17.001	LEN	Logical Record Length	1	1	132
17.002	IDC	Image Designation Character	1	1	01
17.003	ELR	Eye Label	1	1	1
17.004	SRC	Source Agency	1	1	WVMEDS001
17.005	ICD	Iris Capture Date	1	1	20101025
17.017	DUI	Device Unique Identifier	0	1	M0A1B2C3D4E5F
17.019	MMS	Make/Model/Serial Number	0	1	
a	MAK	Make	1	1	GenericIrisVendor
b	MOD	Model	1	1	MidGradeCam
c	SER	Serial Number	1	1	A0a0a0a0
17.021	COM	Comment	0	1	Free text comments about the record
17.028	DME	Damaged Or Missing Eye	1	1	UC

APPENDIX D: SUPPLEMENTARY IDENTITY INFORMATION

The identification service returns the Search Results – Electronic (SRE) that includes the 2.2023 Supplementary Identity Information (SII) field. When an iris identification is made, the FBI Number is used to perform a search of the National Crime Information Center (NCIC). The NCIC search results are used to populate the SII field. The SII format used in the Pilot is described below.

The SII field may contain all, some, or none of the following:

- Identifiers for each NCIC person file that contained the searched FBI Number:
 - NCIC Number (NIC)
 - Originating Agency Case Number (OCA)
- Want/Warrant Information:
 - Offense (OFF)
 - Original Offense (OOC)
 - Wanting Agency ORI (ORI)
- Caution and Medical Codes (CMC)
- Known and Appropriately Suspected Terrorist (KST) handling caveats

The data is formatted with a label, an equals symbol, and a value enclosed in square brackets (e.g. LABEL = [DATA]). Whitespace may be inserted for readability. Each entry begins with the NIC.

Example data:

```
NIC = [X000000000] OCA = [00000000] NIC = [W000000000] OCA = [00-000000] OFF = [PAROLE VIOLATION - SEE MIS] OOC = [ASSAULT] ORI = [TESTORI00] CMC = [00 - ARMED AND DANGEROUS]
```

This example is for an individual that is a registered sex offender wanted for a parole violation and known to be armed. Breakdown:

- NIC = [X000000000]
 - The FBI Number is listed in the Sex Offender (X) file with given NIC.
- OCA = [00000000]
 - The provided OCA is associated with the previous NIC.
- NIC = [W000000000]
 - The FBI Number is listed in the Wanted Persons (W) file with given NIC.
- OFF = [PAROLE VIOLATION - SEE MIS]
 - The FBI Number is listed in the Wanted Persons file for this offense.
- OOC = [ASSAULT]
 - Prior to the parole violation, the original offense was Assault.
- ORI = [TESTORI00]
 - The Wanted Persons entry was created by the agency with ORI "TESTORI00".
- CMC = [00 - ARMED AND DANGEROUS]
 - The individual is known to be armed and dangerous.